Project Fact Sheet

Commonwealth Project 2.2 - Enhanced Energy Recovery through the Use of Microturbines and Optimization of Anaerobic Digestion

GOALS

- Increase and optimize digester gas production through thermal hydrolysis and ultrasound processes.
- Develop and optimize cost effective gas cleanup systems.
- Evaluate and quantify environmental benefits that result from using micro-turbines at sewage treatment plants.
- Evaluate performance and cost during operation so sewage treatment plants have greater certainty on cost and reliability of using micro-turbines.

PROJECT DESCRIPTION

The project is to develop and optimize biogas cleanup systems and study the digester performance improvement through thermal hydrolysis and ultrasound pretreatment. At least three gas cleaning systems will be defined and optimized. It is anticipated that one of these systems will involve hydrogen sulfide removal, gas drying, and siloxane removal. A second system will likely involve gas drying and siloxane removal. A third system, with parameters not yet defined, will also be formulated. For the digester gas production improvement processes (thermal hydrolysis and ultrasound), the focus will be on evaluation of the systems, their impact on gas production, and their cost effectiveness.

BENEFITS TO CALIFORNIA

There are 242 sewage wastewater treatment plants in California. Only 12 sewage treatment plants utilize the biogas to produce hot water or heat the digester in California. At present, there are no standard assessment tools for evaluating digester gas cleanup and energy recovery projects. Similarly, operation and maintenance efficiencies across the industry are Microturbines have been installed at several wastewater treatment plants over the last year, but significant issues must be resolved before they can be deployed on a broader scale. The project will result in the development of piloting of thermal hydrolysis and ultrasound treatment systems to increase biogas production. Once demonstration and testing of these technologies is

completed, other wastewater treatment plants will be able to employ them to improve gas production and energy generation and the overall efficiency of their facility. Similarly, by developing and testing gas cleaning system well suited for microturbines, it will be possible to reduce installation, operation, and maintenance costs and achieve emissions reductions.


Sewage wastewater treatment plants in CA

FUNDING AMOUNT

PIER $2,153,740
Match $482,000
Total $2,635,740

PROJECT STATUS

The project is scheduled from 6/19/2002 to 3/19/2005. The Commonwealth program kick off meeting was held on May 29, 2002 at the California Energy Commission. The project is currently on schedule and within the budget.

FOR MORE INFORMATION

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